

Title	Study of the landslide of Cergnat-LaFrasse
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Abstract

This project tries to study, from a different and original point of view, the landslide of Cergnat – La Frasse. It is located in the right side of the ‘Grande Eau’ river, at east of the Lemman lake in Switzerland

It can be defined as an earth flow. The landslide is made, basically, of Flysch. It has the following characteristics: Length, approximately 2Km.; Width, between 500m in the upper side and 1Km in the lower side and pending mean, 13°. The seasonal speed of movement is about 15 cm/year, though it has been having extraordinary crisis of about 1000 cm/year. In fact the landslide is a set of superposed movements. In this study it has been divided in two areas: Upper unit, slower; and inferior unit that suffers the extraordinary accelerations. Its origin is related to the disappearance of a glacier that it had crossed the valley in the past and it had let free the material of the Flysch from the landslide.

It has suffered various crises and it has required the construction of several works, and the reparation of the routes of 'Aigle-Col de Mosses' and 'Le Sépey-Laysin' that cross the landslide. It is habited, this fact has done that several studies have been written by specialists in geotechnics. But the conclusions on the factors that initialize the movement and the extraordinary accelerations have not been clearly found, until the moment. Possibly because they had not accumulated the enough quantity of data and they had not the actual technology and software.

With the present study is wanted to know, in a decisive way, the factors that produce the accelerations in the landslide and to propose several of effective measures to stop and eliminate the accelerations. It has been used various tools to solve this point:

- Visual evaluation of the data.
- Evaluation using the equilibrium limit method.
- Evaluation using a program of speed prediction based in the Artificial Neural Networks

Each one of these three points of view offers various conclusions on the environmental factors that produce the movement. Also they can evaluate possible solutions of stabilization a priori, and evaluate the behavior of the solutions already built.

Furthermore the Artificial Neural Network can predict the speed of movement in the future, if the correct inputs are introduced in the program (Net precipitation, piezometry data etc.)

For these causes this study wants to be definitive to understand the Landslide of Cergnat – La Frasse, and pretend to be take into account for the future decisions about the stabilization and to try to predict the accelerations in the future with the Artificial Neural Network program.